WASHINGTON DEPARTMENT OF ECOLOGY

ENVIRONMENTAL ASSESSMENT PROGRAM

FRESHWATER MONITORING UNIT

STREAM DISCHARGE TECHNICAL NOTES

STATION ID: 32B100

STATION NAME: Touchet River at Bolles Road

WATER YEAR: 2014

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Introduction

Watershed Description

The Touchet River, the largest tributary of the Walla Walla River, flows out of the Blue Mountains in southeast Washington. Spring Chinook, steelhead, and bull trout are present within the watershed. Land use is primarily agricultural, consisting of dryland crops and irrigated farming in the lower portions.

Gage Location

This gage is located on the right bank, downstream of the Highway 125 Bridge, 3.5 miles west of the town of Waitsburg. It is located at river mile 40.4.

Table 1. Basin Area and Legal Description

Drainage Area (square miles)	357 (Streamstats)
Latitude (degrees, minutes, seconds)	46° 16' 28" N
Longitude (degrees, minutes, seconds)	118° 13' 16" W

Table 2. Discharge Statistics.

Mean Annual Discharge (cfs)	226
Median Annual Discharge (cfs)	115
Maximum Daily Mean Discharge (cfs)	2240
Minimum Daily Mean Discharge (cfs)	35
Maximum Instantaneous Discharge (cfs)	2430
Minimum Instantaneous Discharge (cfs)	33
Discharge Equaled or Exceeded 10 % of Recorded Time (cfs)	561
Discharge Equaled or Exceeded 90 % of Recorded Time (cfs)	42
Number of Days Discharge is Greater Than Range of Ratings	0
Number of Days Discharge is Less Than Range of Ratings	0
Number of Un-Reported Days	9
Number of Days Qualified as Estimates	15
Number of Modeled Days	0

Note: Statistics displayed in Table 2 may not include values in which the predicted discharge exceeds the range of ratings.

Table 2 Discussion (Discharge Statistics)

The nine unreported days were due to ice-impacted data. The period following an ice-impacted dataset was considered an estimate until a manual primary gage index reading could be taken. This accounts for the 15 estimated days. Eight discharge measurements were taken throughout the water year, ranging from 42 to 2280 cfs.

Table 3. Error Analysis Summary.

Potential Logger Drift Error (% of discharge)	0.40
Potential Weighted Rating Error (% of discharge)	9.50
Total Potential Error (% of discharge)	9.90

Table 3 Discussion (Error Analysis)

The potential logger drift refers to the amount of instrument drift that was corrected in the stage record.

The potential weighted rating error is based on the quality of the individual discharge measurements used to define the particular rating and how those defining measurements related to the rating.

Table 4. Stage Record Summary

Minimum Recorded Stage (feet)	2.12
Maximum Recorded Stage (feet)	5.92
Range of Recorded Stage (feet)	3.8

Table 4 Discussion (Stage Record)

Peak flow occurred on March 10, 2014, during spring run-off. The lowest flow of the water year occurred in mid-August, 2014.

Table 5. Rating Table Summary

Rating Table No.	101	802	102
Period of Ratings	10/1/13 to 12/5/13	12/2/13 to 12/12/13	12/9/13 to 3/10/14
Range of Ratings (cfs)	29 to 2020	26 to 7780	29 to 2020
No. of Defining Measurements	9	10	9
Rating Error (%)	9.5	9.3	9.5

Rating Table No.	11		
Period of Ratings	3/7/14 to 9/30/14		
Range of Ratings (cfs)	14 to 4510		
No. of Defining Measurements	17		
Rating Error (%)	9.6		

Rating Table No.			
Period of Ratings			
Range of Ratings (cfs)			
No. of Defining Measurements			
Rating Error (%)			

Table 5 Discussion (Rating Tables)

Rating 802 resulted from channel fill caused by an early winter precipitation event. Rating 102 was a result of channel scour following an ice-impacted period. The third shift of the water year was due to channel scour caused by early spring run-off.

Table 6. Model Summary

Model Type (Slope conveyance, other, none)	Slope Conveyance
Range of Modeled Stage (feet)	6.0 to 9.48
Range of Modeled Discharge (cfs)	1780 to 7780
Valid Period for Model	12/2/13 to 12/12/13
Model Confidence	2.1%

Table 6 Discussion (Modeled Data)

The slope conveyance model is based on a cross-section and longitudinal survey and on data from three discharge measurements that were taken under channel control.

Table 7. Survey Type and Date (station, cross section, longitudinal)

Type	Date
Station, X-Section, Long.	9/27/11

Table 7 Discussion (Surveys)

Activities Completed

Routine station visits for maintenance and discharge measurements. Equipment to collect water quality data was installed in June. This was done to support an effectiveness monitoring project.

Appendix